Flood Map Modernization

State Business Plan

Commonwealth of Kentucky

FY 2006 Update

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Section 1. Purpose

The Kentucky Division of Water (KDOW), through a Cooperating Technical Partnership (CTP) agreement with FEMA, has developed a Business Plan for implementing FEMA's Flood Map Modernization Program. This Plan provides a comprehensive approach for the development of Digital Flood Insurance Rate Maps (DFIRMs) for all of Kentucky's counties as well as building the State's capacity to assume full responsibility for program oversight and administration. This annual update serves as a clarification to the original Business Plan submitted in March 2004 and the revisions to the original Business Plan submitted in February 2005. Items contained in this document will supplement the original Business Plan and the 2005 revisions and supersede earlier versions where stated.

Section 2. Business Plan Revisions

2.1. Procedure Memoranda

Several procedure memoranda have been issued for clarifications of major issues and to clarify and supplement the provisions of *Guidelines and Specifications for Flood Hazard Mapping Partners.*

In light of Procedure Memoranda 34, 35, 36, 37, and 38 issued by FEMA Headquarters, the Kentucky Flood Map Modernization Business Plan for the Commonwealth of Kentucky amends its existing Business Plan to include the provisions included in those memoranda. All Mapping Activity Statements will be completed using the revised standards outlined in FEMA Procedure Memoranda 34, 35, 36, 37, and 38.
In particular, KDOW will implement the following standards and recommendations:

Per Procedure Memorandum 34:

a. KDOW will provide information about levees located in or adjacent to study areas and provided to FEMA via the FEMA Levee Information System (FLIS).
b. When levees are identified at the scoping meeting the community will be informed of the data requirements for FEMA to recognize a levee as providing protection from the 1% annual chance flood on the FIRM.

Per Procedure Memorandum 35:

a. Compliance with Floodplain Boundary Data Quality Standards.
   All studies within the Commonwealth of Kentucky will comply with the data quality standards outlined in Section 7 of the Multi-Year Flood Hazard Identification Plan (MHIP) for Fiscal Year 2004-2008. The level of study in each

county will be determined upon scoping and reported to the Regional Project Officer in Mapping Activity Statements and Final Scoping Reports. It is anticipated that the remaining counties in Kentucky will fall under Risk Class B and C.

b. Use of the Scoping Tool in the Multihazard Information Platform (MIP). The Scoping Tool in the MIP will be used for FY 2006-2008 scoping activities. This will facilitate any pre-scoping activities performed by the NSP and allow for easier incorporation into the final Scoping Reports.
c. Compliance with Data Capture Standards. Appendix N of *Guidelines and Specifications for Flood Hazard Mapping Partners* will be used in generating engineering and mapping data during flood hazard studies. If available, the MIP utilities will be used to ensure data submission compliance with the Data Capture Standards (DCS).
d. Entering Project Data into the MIP. All project data will be stored in the MIP, if available. This includes all management data and technical engineering and mapping data.
e. Coordination with Regional Management Centers. Coordination concerning mapping activities will include the RMC IV to the fullest extent possible.
f. Developing Quality Control (QC) Plans. A QC plan will be developed by KDOW and delivered to FEMA according to the MAS cooperative agreement. This plan will outline the steps taken by KDOW to review and comment on study data and will include the spreadsheet checklists used for these purposes.

Per Procedure Memorandum 36:

A profile baseline on all DFIRMs developed that supercedes the standards outlined in *Guidelines and Specifications for Flood Hazard Mapping Partners* (April 2003). This profile baseline will match the streamline/profile baseline used in effective or any new study areas.

Per Procedure Memorandum 37:

Protocol for Atlantic and Gulf Coast Coastal Flood Insurance Studies in FY05. Not applicable to Kentucky as there are no Atlantic or Gulf Coast Coastal Flood Insurance Studies in the Commonwealth.

Per Procedure Memorandum 38:

All updated procedures for adhering to the MHIP Section 7 will be applied including:

a. Determining the risk class upfront. This decision will be made by state and local officials during the project scoping phase. Risk classes for each county are indicated in Tables 3.1.1 and 3.1.2. Figure 2.1.1 shows the risk class of each county statewide.
b. Determining the adequacy of level of study.
c. Determining the adequacy and reliability of existing flood hazard data.
d. Determining the appropriate method for mapping non-revised floodplains.

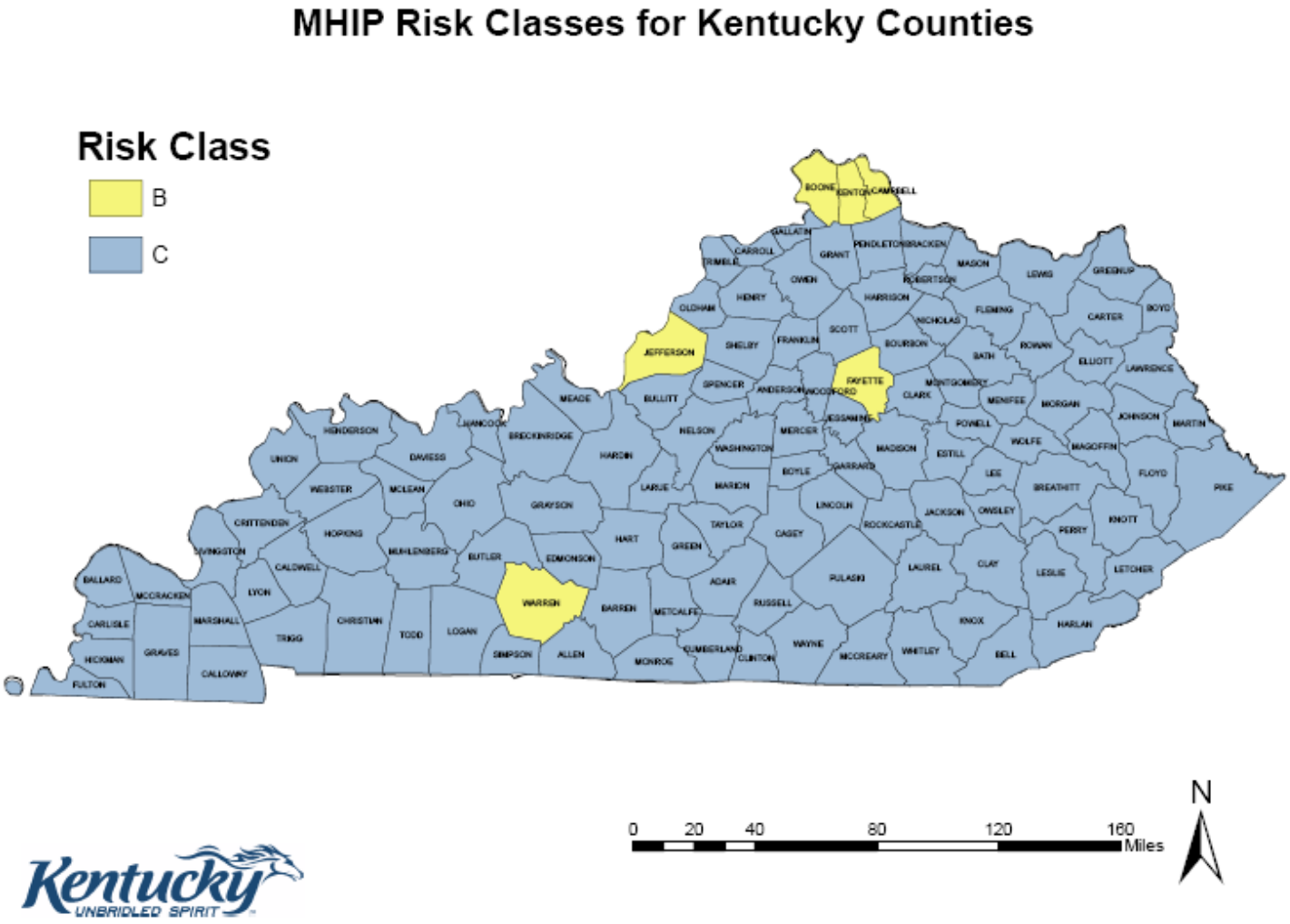

Figure 2.1.1. MHIP Risk Classes for Kentucky Counties

2.2. Midcourse Adjustment

KDOW was asked by FEMA Region IV to address the Map Modernization Midcourse Adjustment in this Business Plan Update.

FEMA Region IV provided a table indicating the adjusted program metrics that apply to the Midcourse Adjustment. That table in included below.

Table 2.2.1. Comparison of original Key Performance Indicators (KPIs) and Midcourse Adjustment KPIs.

Performance Metric/KPI	Original Course	Adjusted Course
% of land area of continental United States covered by digital flood maps	100%	65%
% of U.S. population covered by digital flood maps	100%	92%
% of mapped stream miles meeting 2005 Floodplain Boundary Standard	57%	75%
% of population covered by maps meeting 2005 Floodplain Boundary Standard	32%	80%
% of mapped stream miles with validated, new or updated engineering analysis	22%	30%
% of population covered by maps with validated, new or updated engineering analysis	15%	40%

The following items were relayed to all mapping partners via memorandum on July 28, 2006. KDOW's approach to addressing each item is as follows:

1. Budget and project sequence for projects to be initiated in FY07 and FY08. Please describe and justify any counties that you propose not to be funded by FY08. For planning purposes, the annual FY06 State allocation prior to the 10% reduction should be used.

   Information has been provided in Table 2.2.2. No counties proposed to be unfunded.

Table 2.2.2. Budget and Production Sequence for FY07 and FY08 Counties. Supersedes all previous versions.

County	Estimated Funding	Year Funded	Preliminary DFIRM Completion
Ballard	$ 100,000	FY 07	FY 08
Caldwell	$ 127,000	FY 07	FY 08
Calloway	$ 125,000	FY 07	FY 08
Carlisle	$ 100,000	FY 07	FY 08
Clark	$ 125,000	FY 07	FY 08
Estill	$ 100,000	FY 07	FY 08
Fulton	$ 100,000	FY 07	FY 08
Garrard	$ 100,000	FY 07	FY 08
Graves	$ 163,000	FY 07	FY 08
Hickman	$ 100,000	FY 07	FY 08
Jessamine	$ 150,000	FY 07	FY 08

County	Estimated Funding	Year Funded	Preliminary DFIRM Completion
Johnson	$ 150,000	FY 07	FY 08
Lawrence	$ 125,000	FY 07	FY 08
Livingston	$ 100,000	FY 07	FY 08
Logan	$ 150,000	FY 07	FY 08
Lyon	$ 100,000	FY 07	FY 08
Madison	$ 200,000	FY 07	FY 08
Marion	$ 100,000	FY 07	FY 08
Marshall	$ 126,000	FY 07	FY 08
McCracken	$ 175,000	FY 07	FY 08
Menifee	$ 100,000	FY 07	FY 08
Montgomery	$ 100,000	FY 07	FY 08
Nelson	$ 150,000	FY 07	FY 08
Powell	$ 100,000	FY 07	FY 08
Scott	$ 126,000	FY 07	FY 08
Simpson	$ 100,000	FY 07	FY 08
Todd	$ 100,000	FY 07	FY 08
Washington	$ 100,000	FY 07	FY 08
Woodford	$ 110,000	FY 07	FY 08
FY 07 Total	**$ 3,502,000**		
Adair	$ 100,000	FY 08	FY 09
Allen	$ 114,000	FY 08	FY 09
Barren	$ 150,000	FY 08	FY 09
Bath	$ 125,000	FY 08	FY 09
Bourbon	$ 125,000	FY 08	FY 09
Butler	$ 100,000	FY 08	FY 09
Carter	$ 175,000	FY 08	FY 09
Clinton	$ 100,000	FY 08	FY 09
Cumberland	$ 100,000	FY 08	FY 09
Edmonson	$ 100,000	FY 08	FY 09
Elliott	$ 100,000	FY 08	FY 09
Fleming	$ 100,000	FY 08	FY 09
Grant	$ 100,000	FY 08	FY 09
Grayson	$ 102,000	FY 08	FY 09
Green	$ 100,000	FY 08	FY 09
Harrison	$ 132,000	FY 08	FY 09
Hart	$ 100,000	FY 08	FY 09
Henry	$ 100,000	FY 08	FY 09
McLean	$ 100,000	FY 08	FY 09
Metcalfe	$ 100,000	FY 08	FY 09
Monroe	$ 100,000	FY 08	FY 09
Muhlenberg	$ 150,000	FY 08	FY 09
Nicholas	$ 100,000	FY 08	FY 09
Ohio	$ 145,000	FY 08	FY 09
Owen	$ 114,000	FY 08	FY 09
Robertson	$ 100,000	FY 08	FY 09
Rowan	$ 125,000	FY 08	FY 09
Russell	$ 100,000	FY 08	FY 09

County	Estimated Funding	Year Funded	Preliminary DFIRM Completion
Taylor	$ 100,000	FY 08	FY 09
Trigg	$ 120,000	FY 08	FY 09
Webster	$ 125,000	FY 08	FY 09
FY 08 Total	**$3,502,000**		
Cumulative Total	**$7,004,000**		

2. Approach to validating the engineering that supports any Special Flood Hazard Areas that are redelineated or converted digitally from past studies. Include your target percent validation for future studies.

   KDOW does not anticipate validating engineering for FY03 and FY04 counties. It is anticipated that counties funded in FY03 and FY04 do not meet the Floodplain Boundary Standard; in order to ensure that past studies meet the Floodplain Boundary Standard, previous studies must be re-scoped. This approach has been taken in other FEMA regions and KDOW strongly urges re-scoping of FY03 and FY04 counties to ensure Floodplain Boundary Standard compliance and to address unmet needs. The only areas in counties funded in FY05 that are not expected to meet the Floodplain Boundary Standard are SFHAs that have been delineated on topographic data that is better on effective FIRMs that is no longer available. These areas will be digitized and incorporated into DFIRMs as S_VOID areas. Less than 5% of FY05 studies fall under this category. The target percent validation for future studies is 90% (see item 3 below).

3. Approach to meeting the Floodplain Boundary Standard for studies funded in FY06 and beyond. Include an explanation and estimated percentage for stream miles that are not expected to comply with the floodplain boundary standard for studies funded in FY06, FY07, and FY08.

   It is anticipated that all studies funded in FY06 and beyond will meet the Floodplain Boundary Standard. All new SFHAs will be topographically corrected using the best available topographic information. The only areas that are not expected to meet the Floodplain Boundary Standard are SFHAs that have been delineated on topographic data that is better on effective FIRMs that is no longer available. These areas will be digitized and incorporated into DFIRMs as S_VOID areas. It is anticipated that less than 10% of all SFHAs identified from FY06 – FY08 will fall under this category.

4. Any plans to prepare non-countywide mapping projects. Under certain conditions, FEMA will support partial countywide mapping projects if there is justification for omitting selected areas. Please explain if this is appropriate for any of your projects.

   None anticipated. Every county in the state with the exception of four (Adair, Lyon, Monroe, and Wolfe) have NFIP participating communities. KDOW desires a seamless flood boundary coverage; any alterations in the current production sequence will invalidate this wish.

Section 3. Significant Issues

3.1. Unmet Needs

Funding is needed beyond FY 2008 to revisit communities with unmet mapping needs. Most, if not all counties funded from FY 2003 - FY 2005 have needs that require additional funding in order to achieve the desired level of flood hazard identification. In addition, issues have arisen regarding edge-matching in counties mapped prior to FY 2005. It is vital that the most up to date digital information be included in order to maximize the usability and efficiency of DFIRM products. The other active CTPs in Kentucky (Louisville Metro, Lexington-Fayette Urban County Government (LFUCG), and Warren County/Bowling Green) have approached KDOW for additional funding for unmet needs. During the Scoping phase of FY 2005 counties, many communities have identified areas beyond the current Scopes of Work as needing more detailed flood hazard information. These needs are currently being documented in WISE Scoping Tool to indicate the need for future studies.

KDOW has regulatory authority over all mapped and unmapped streams in KY; state stream construction permits are generally issued for all development up to the 1 square mile (1 mi^2) watershed area. In unmapped areas, this has the potential to put considerable financial strain on citizens desiring a state stream construction permit, since technical data must be provided by the permittee to KDOW in order to process and review the permit application. Due to this need, it is KDOW's goal to map all floodplain areas up to the 1 square mile watershed area, dependent upon funding. With over 89,000 miles of rivers and streams in the Commonwealth, there is considerable need for funding beyond FY 2008. After the Map Modernization effort funding cycle is complete in FY 2008, less than 50% of the flood-prone areas in the state will be identified.

Additional needs are outlined in the sections below.

3.1.1. Topographic Data

The single most need in the state of Kentucky that will maximize the efforts of the Map Modernization program is the acquisition of reliable topographic data. A statewide LIDAR dataset will aid governmental entities at all levels (federal, state, and local) not only in floodplain mapping, but in developing long-term land use management plans for planning, zoning, and economic development. LIDAR data may be used to obtain 3-dimensional images of buildings and other structures for Homeland Security purposes and multi-spectral images of flora for forestry and USDA use. With this in mind, KDOW is working diligently to form partnerships with other state and federal agencies to obtain a statewide LIDAR dataset. This inter-departmental cooperation is vital to identify funding sources and areas of greatest need.

3.1.2. Aerial Imagery Basemaps

KDOW is utilizing USDA-FSA imagery from 2004 as the basemap for all studies conducted in FY 2005 and beyond where there is no local basemap data available. In addition, it is anticipated that the USDA-FSA imagery will be updated every 4 years. However, the usability of this data is somewhat limited in that the imagery is obtained in "leaf on" conditions. Some areas of concern may be obscured with vegetation in using the USDA-FSA imagery. Once

again, inter-departmental cooperation is required to obtain the best data possible for flood studies and a multitude of other uses.

3.1.3. Detailed Studies of Major River Systems

KDOW has identified several major river systems where leverage data from the USACE or other federal or state entity is available. However, most of the major river systems statewide do not have detailed flood study data. It is vital for KDOW to obtain detailed study data on these river systems so that flooding potential statewide can be identified. In addition, detailed studies on major river systems will indicate how backwater effects may govern flooding effects on smaller tributaries during the 1% annual chance flood. A map indicating the major river systems needing detailed study information may be found in Figure 3.1.1. Based upon available data and floodplain permits processed by KDOW, the rivers in the following major watersheds are considered high priority areas:

- Kentucky River Basin
- Licking River Basin
- Big Sandy River Basin
- Tygart's Creek-Little Sandy River Basin
- Green River Basin

The remaining 6 major watersheds – Tennessee River, Mississippi River, Cumberland River, Tradewater River, Salt River, and Ohio River - are in need of detailed studies as well, however these watersheds do not have as many flooding issues, floodplain permit applications, or population affected by flooding.

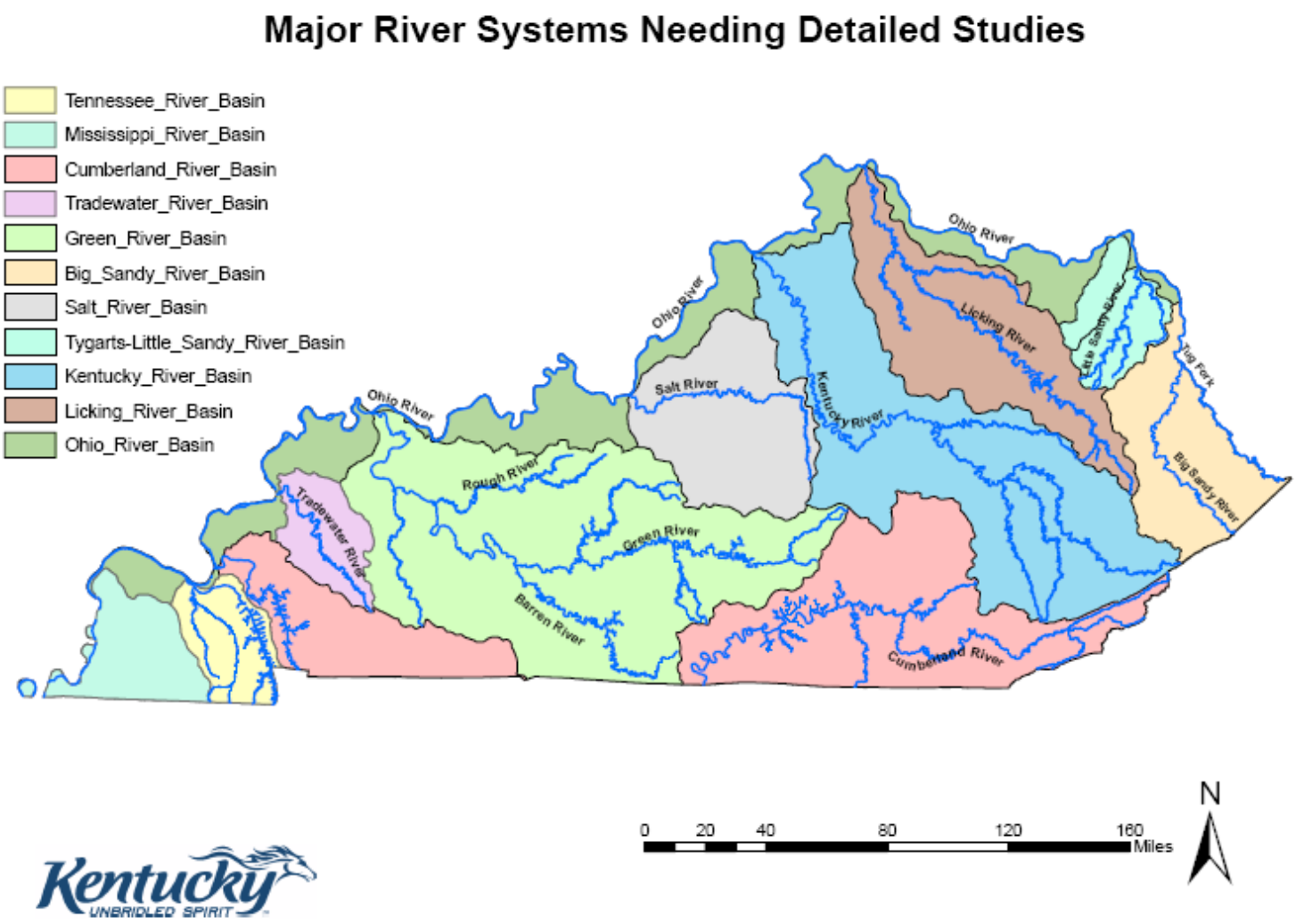

Figure 3.1.1. Major River Systems Needing Detailed Studies

3.1.4. Additional Needs

There are significant unmet needs in counties that were mapped prior to FY 2003 and FY 2003-FY2005. KDOW has compiled information that has aided in identifying unmet needs for counties that have already been or are in the process of being mapped. Table 3.1.1 and Figures 3.1.2 and 3.1.3 indicate areas of need.

Table 3.1.1. Overview of needs for counties mapped from FY 2003 – FY 2005.

	Type of Need									
							Study Needs			
	Year Funded	Risk Class[a]	Levee/floodwall system re-certification*	Datum Conversion[b]	Better Topographic Data	Basemap Update	1 square mile Zone A identified	Detailed Study Needs	Leverage H&H Data[c]	Re-scoping Needed[d]
County										
Bell	FY 2004	C				X	X	X		X
Boone	FY 2004	B					X	X	X[1]	X
Boyd	FY 2003 or prior	C	X	X		X	X	X	X[1]	X
Bracken	FY 2003 or prior	C		X		X	X	X	X[1]	X
Breathitt	FY 2005	C					X	X		
Breckinridge	FY 2005	C						X		
Bullitt	FY 2003 or prior	C		X		X	X	X		X
Campbell	FY 2003 or prior	B	X	X	X	X	X	X	X[1]	X
Carroll	FY 2004	C				X	X	X	X[1]	X
Christian	FY 2005	C						X		
Clay	FY 2005	C					X	X		
Daviess	FY 2005	C						X		
Fayette	FY 2003 or prior	B					X	X		X
Franklin	FY 2004	C				X	X	X		X
Gallatin	FY 2005	C					X	X		
Greenup	FY 2003 or prior	C		X		X	X	X	X[1]	X
Hancock	FY 2005	C	X					X		
Hardin	FY 2004	C				X	X	X		X
Harlan	FY 2004	C				X	X	X		X
Hopkins	FY 2005	C						X		

	Type of Need									
							Study Needs			
	Year Funded	Risk Class[a]	Levee/floodwall system re-certification*	Datum Conversion[b]	Better Topographic Data	Basemap Update	1 square mile Zone A identified	Detailed Study Needs	Leverage H&H Data[c]	Re-scoping Needed[d]
Jefferson	FY 2003 or prior	B			X		X	X	X[1]	X
Kenton	FY 2005	B	X				X	X		
Knott	FY 2005	C					X	X		
Knox	FY 2004	C				X	X	X		X
Laurel	FY 2004	C				X	X	X		X
Leslie	FY 2005	C					X	X		
Letcher	FY 2005	C					X	X		
Lewis	FY 2003 or prior	C		X		X	X	X	X[1,2]	X
Magoffin	FY 2003 or prior	C		X		X	X	X		X
Mason	FY 2003 or prior	C		X		X	X	X	X[1]	X
Oldham	FY 2004	C				X	X	X	X[1]	X
Pendleton	FY 2003 or prior	C		X		X	X	X	X[1]	X
Perry	FY 2004	C				X	X	X		X
Pike	FY 2004	C				X	X	X	X[3]	X
Trimble	FY 2005	C					X	X		
Warren	FY 2004	B					X	X		X
Whitley	FY 2004	C				X	X	X		X
Total Stream Mile Needs[e]							**5279**	**		

[a] Risk Class determined from Chapter 7.0 of MHIP
[b] Effective DFIRM datum is NGVD 1929; datum adjustment to NAVD 1988 is required.

[c] Anticipated available leverage data; additional data may be available upon further research.
[d] Counties mapped prior to FY 2003 only incorporated new Ohio River data. Since that time, a newer Ohio River model has been produced; counties must be re-scoped to identify detailed mapping needs. Counties mapped in FY 2004 and FY 2003 require re-scoping to identify additional study needs.
[e] These figures are based upon initial estimates by KDOW. It is anticipated that the number of additional stream mile needs will change somewhat with more detailed scoping.

[1]Ohio River data available
[2]Kinniconnick Creek data available
[3]Multiple flooding sources studied in detail by USACE – Huntington District

*Levees: City of Ashland (Boyd County), City of Catlettsburg (Boyd County), City of Dayton (Campbell County), City of Newport (Campbell County), City of Covington (Kenton County), City of Hawesville (Hancock County)

** Additional detailed study needs to be determined.

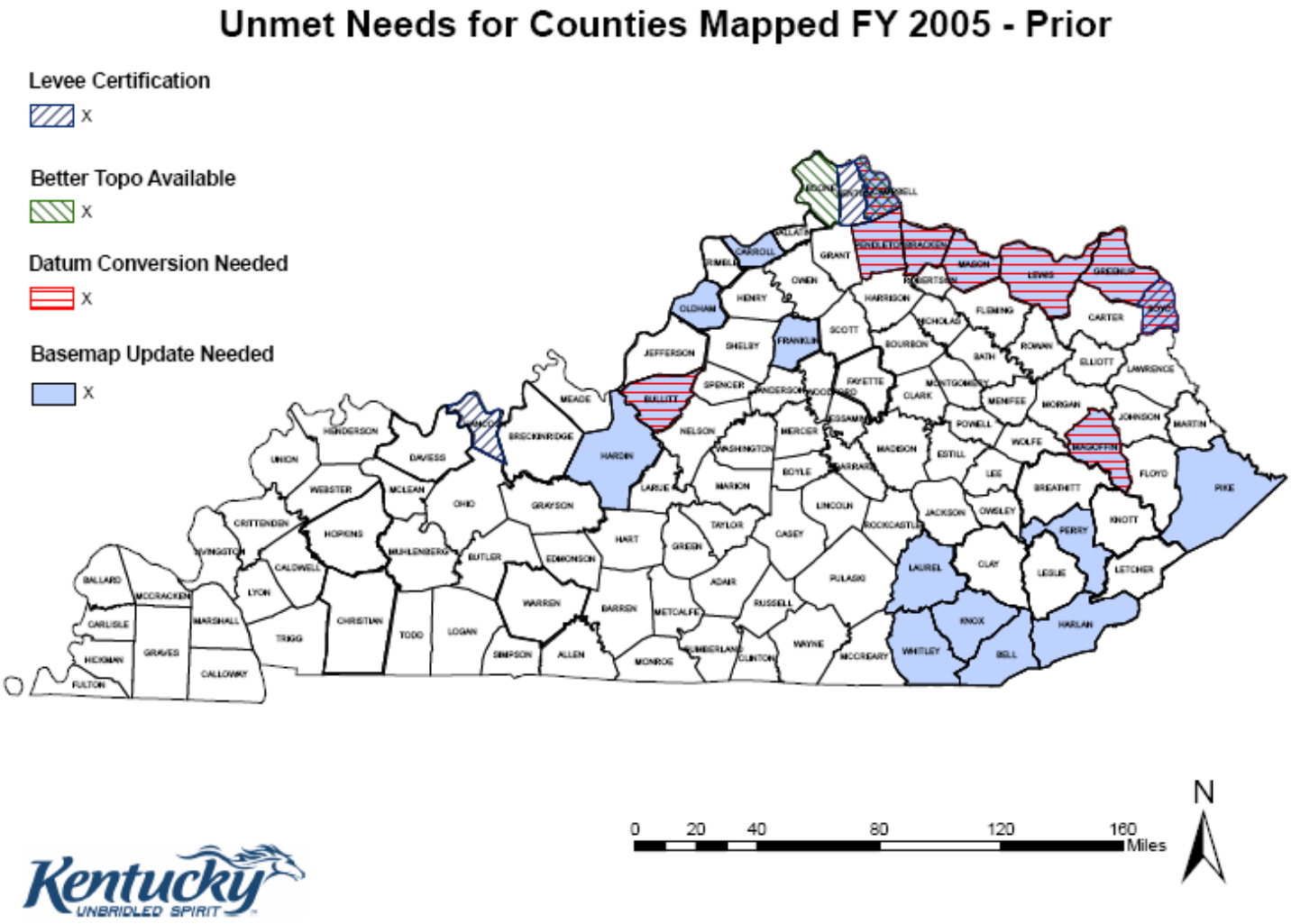

Figure 3.1.2. Unmet needs for counties mapped in FY 2005 or prior.

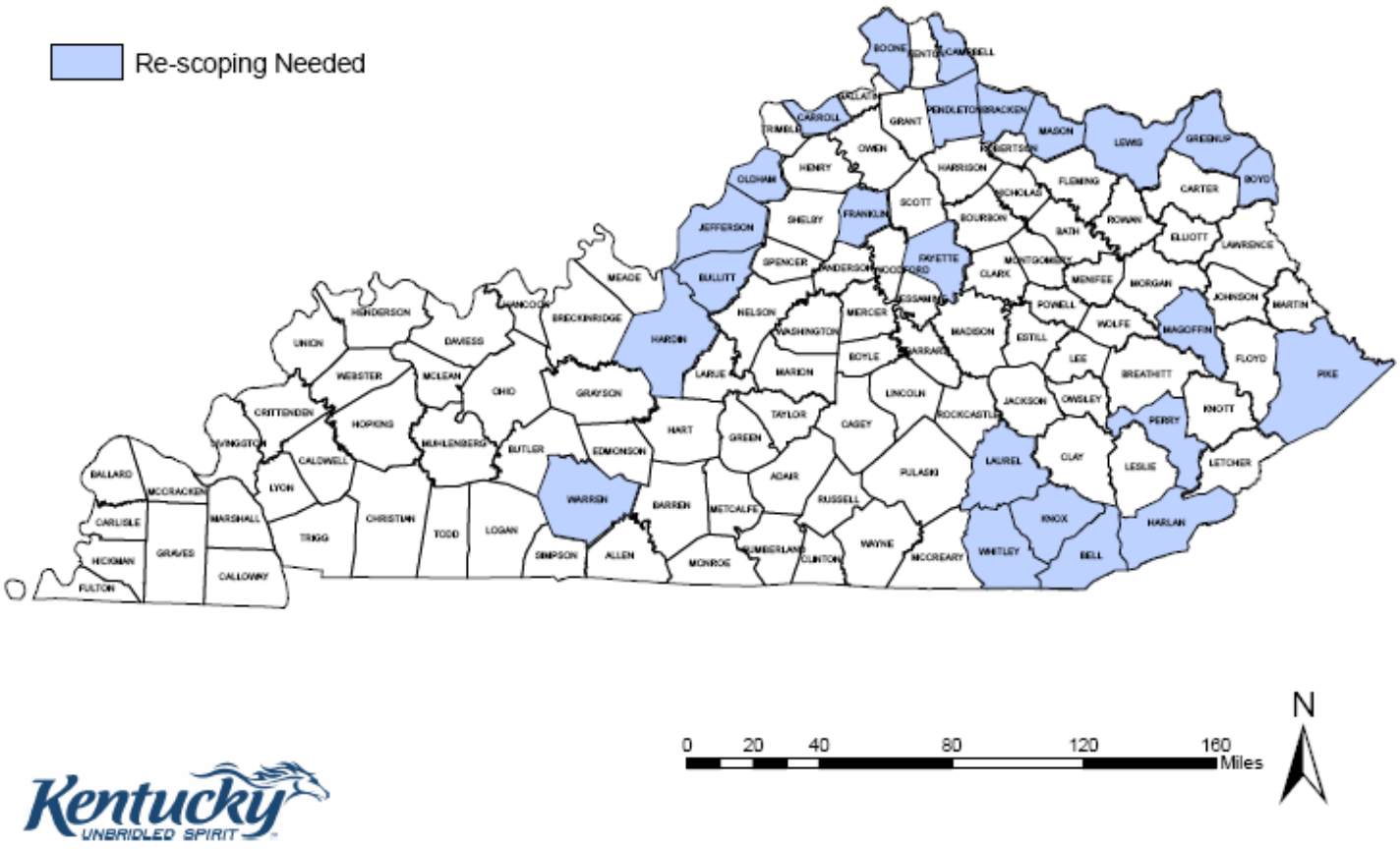

Figure 3.1.3. Re-scoping needs for counties mapped in FY 2005 or prior.

As indicated in Table 3.1.1 and Figures 3.1.1, 3.1.2, and 3.1.3 many of the counties mapped from FY 2003 – FY 2005 have significant unmet needs. Detailed studies are needed on the major river systems statewide, incorporation of leverage data is needed, updated basemap information is needed, several levee certification/re-certifications are needed, and identifying SFHAs that drain greater than 1 square mile are needed. It is anticipated that in order to further quantify unmet needs in these counties, re-scoping is required.

In addition to identifying unmet needs for counties mapped FY 2005 or prior, KDOW has compiled detailed information on the mapping needs of all 120 counties statewide. Generally, existing SFHAs and streams that are in need of identification of SFHAs were intersected with census data in order to identify areas in each county that had high numbers of vulnerable population.

This was accomplished by utilizing the following methodology:

Using ArcGIS, data were layered that contained information about communities, parks and roads along with hydrologic data from the USGS and the Kentucky Geonet where available. Available FEMA Q3 floodplain data were overlayed with this base data. Where this data wasn't available, DFIRM and FIRM data were used where available. In some counties, there was no available data for this portion of the study. Small streams of less than 1 square mile were eliminated from the data to focus the study on large streams. Where National Hydrologic Data streams coincided with studied floodplains, the stream was classified according to its level or lack of study and represented thematically according to its classification (existing Zone AE, existing Zone A, streams that drain 1 square mile or more in need of identifying a SFHA). The total mileage of these categories was tabulated and is represented in Tables 3.1.1 and 3.1.2.

Using these thematic representations, (existing Zone AE, existing Zone A, streams that drain 1 square mile or more in need of identifying a SFHA) streams were then compared to areas of relatively high population to help locate areas of high vulnerability. Census blocks were imported for the state. After removing all census blocks without population, the mean of the remaining blocks was determined to be 50 persons. All blocks with a population of fewer than 50 were then discarded as not having significant population to justify priority spending. The remaining blocks that had a stream reach were then represented and classified thematically according to population. Due to the magnitude of the data that was created in this process, the resulting maps are not included in this Business Plan revision. However, examples of the data that was generated is included in Appendix A.

3.1.5. Future Studies

KDOW has also compiled detailed information regarding the anticipated needs for counties that will be mapped from FY 2006 – FY 2008. This information, including MHIP Risk Class, is located in Table 3.1.2.

Table 3.1.2. Overview of needs for counties mapped from FY 2006 – FY 2008.

	Type of Need									
							Study Needs			
	Year Funded	Risk Class[a]	Levee/floodwall system re-certification*	Datum Conversion[b]	Better Topographic Data	Basemap Update	Effective Zone A	Effective Zone AE	1 square mile Zone A identified	Leverage H&H data[c]
County										
Adair	FY 2008	C		X		X	X	X	X	
Allen	FY 2008	C		X		X	X	X	X	
Anderson	FY 2006	C		X		X	X	X	X	
Ballard	FY 2007	C		X		X	X	X	X	X[1]
Barren	FY 2008	C		X		X	X	X	X	
Bath	FY 2008	C		X		X	X	X	X	
Bourbon	FY 2008	C		X		X	X	X	X	
Boyle	FY 2006	C		X	X	X	X	X	X	
Butler	FY 2008	C		X		X	X	X	X	
Caldwell	FY 2007	C		X		X	X	X	X	
Calloway	FY 2007	C		X		X	X	X	X	
Carlisle	FY 2007	C		X		X	X	X	X	
Carter	FY 2008	C		X		X	X	X	X	
Casey	FY 2006	C		X		X	X	X	X	
Clark	FY 2007	C		X		X	X	X	X	
Clinton	FY 2008	C		X		X	X	X	X	
Crittenden	FY 2006	C		X		X	X	X	X	X[1]
Cumberland	FY 2008	C		X		X	X	X	X	
Edmonson	FY 2008	C		X		X	X	X	X	
Elliott	FY 2008	C		X		X	X	X	X	
Estill	FY 2007	C		X		X	X	X	X	
Fleming	FY 2008	C		X		X	X	X	X	
Floyd	FY 2006	C		X		X	X	X	X	X[2]
Fulton	FY 2007	C	X	X		X	X	X	X	
Garrard	FY 2007	C		X		X	X	X	X	
Grant	FY 2008	C		X		X	X	X	X	

	Type of Need										
							Study Needs				
	Year Funded	Risk Class[a]	Levee/floodwall system re-certification*	Datum Conversion[b]	Better Topographic Data	Basemap Update	Effective Zone A	Effective Zone AE	1 square mile Zone A identified	Leverage H&H data[c]
Graves	FY 2007	C		X		X	X	X	X	
Grayson	FY 2008	C		X		X	X	X	X	
Green	FY 2008	C		X		X	X	X	X	
Harrison	FY 2008	C		X		X	X	X	X	
Hart	FY 2008	C		X		X	X	X	X	
Henderson	FY 2006	C		X		X	X	X	X	X[1]
Henry	FY 2008	C		X		X	X	X	X	
Hickman	FY 2007	C		X		X	X	X	X	
Jackson	FY 2006	C		X		X	X	X	X	
Jessamine	FY 2007	C		X		X	X	X	X	
Johnson	FY 2007	C		X		X	X	X	X	X[2]
Larue	FY 2006	C		X		X	X	X	X	
Lawrence	FY 2007	C		X		X	X	X	X	X[2]
Lee	FY 2006	C		X		X	X	X	X	
Lincoln	FY 2006	C		X		X	X	X	X	
Livingston	FY 2007	C		X		X	X	X	X	X[1]
Logan	FY 2007	C		X		X	X	X	X	
Lyon	FY 2007	C		X		X	X	X	X	
Madison	FY 2007	C		X		X	X	X	X	
Marion	FY 2007	C		X		X	X	X	X	
Marshall	FY 2007	C		X		X	X	X	X	
Martin	FY 2006	C		X		X	X	X	X	X[2]
McCracken	FY 2007	C	X	X		X	X	X	X	X[1]
McCreary	FY 2006	C		X		X	X	X	X	
Meade	FY 2006	C		X		X	X	X	X	X[1]
Menifee	FY 2007	C		X		X	X	X	X	
Mercer	FY 2006	C		X		X	X	X	X	
McLean	FY 2008	C		X		X	X	X	X	
Metcalfe	FY 2008	C		X		X	X	X	X	

	Type of Need										
	Year Funded	Risk Class[a]	Levee/floodwall system re-certification*	Datum Conversion[b]	Better Topographic Data	Basemap Update	Study Needs				
							Effective Zone A	Effective Zone AE	1 square mile Zone A identified	Leverage H&H data[c]	
Monroe	FY 2008	C		X		X	X	X	X		
Montgomery	FY 2007	C		X		X	X	X	X		
Morgan	FY 2006	C		X		X	X	X	X		
Muhlenberg	FY 2008	C		X		X	X	X	X		
Nelson	FY 2007	C		X		X	X	X	X		
Nicholas	FY 2008	C		X		X	X	X	X		
Ohio	FY 2008	C		X		X	X	X	X		
Owen	FY 2008	C		X		X	X	X	X		
Owsley	FY 2006	C		X		X	X	X	X		
Powell	FY 2007	C		X		X	X	X	X		
Pulaski	FY 2006	C		X		X	X	X	X		
Robertson	FY 2008	C		X		X	X	X	X		
Rockcastle	FY 2006	C		X		X	X	X	X		
Rowan	FY 2008	C		X		X	X	X	X		
Russell	FY 2008	C		X		X	X	X	X		
Scott	FY 2007	C		X		X	X	X	X		
Shelby	FY 2006	C		X		X	X	X	X		
Simpson	FY 2007	C		X		X	X	X	X		
Spencer	FY 2006	C	X	X		X	X	X	X		
Taylor	FY 2008	C		X		X	X	X	X		
Todd	FY 2007	C		X		X	X	X	X		
Trigg	FY 2008	C		X		X	X	X	X		
Union	FY 2006	C	X	X		X	X	X	X	X[1]	
Washington	FY 2007	C		X		X	X	X	X		
Wayne	FY 2006	C		X		X	X	X	X		
Webster	FY 2008	C		X		X	X	X	X		
Wolfe	FY 2006	C		X		X	X	X	X		
Woodford	FY 2007	C		X		X	X	X	X		
Total Stream							**9032**	**2266**	**12318**		

	Type of Need									
							Study Needs			
	Year Funded	Risk Class[a]	Levee/floodwall system re-certification*	Datum Conversion[b]	Better Topographic Data	Basemap Update	Effective Zone A	Effective Zone AE	1 square mile Zone A identified	Leverage H&H data[c]
Mile Needs[d]										

[a] Risk Class determined from Chapter 7.0 of MHIP
[b] Effective FIRM datum is NGVD 1929; datum adjustment to NAVD 1988 is required.
[c] Anticipated available leverage data; additional data may be available upon further research.
[d] These figures are based upon initial estimates by KDOW. It is anticipated that the number of additional stream mile needs will change somewhat with more detailed scoping.

[1]Ohio River data available
[2]Multiple flooding sources studied in detail by USACE – Huntington District
[3]Cumberland River data available

*Levees: City of Hickman (Fulton County), Fulton County Unicorporated Areas, City of Paducah (McCracken County), City of Taylorsville (Spencer County), City of Sturgis (Union County), City of Uniontown (Union County)

3.1.6. Other State CTPs

KDOW has been in contact with the other active CTPs within the state (Louisville Metro, Lexington/Fayette Urban County Government (LFUCG), and Warren County/Bowling Green). Each CTP has submitted a detailed list of unmet needs that supplements the needs outlined within this Business Plan revision. KDOW values the efforts of the CTPs within the state and views their unmet needs as extremely important. The Business Plan revisions/unmet needs for other state CTPs may be found in Appendix B.

3.2. Map Maintenance

KDOW realizes the importance of map maintenance and that while every county statewide will be receiving digital flood hazard information, development, drainage patterns, and the availability of new data necessitates the need to devise a schedule for map maintenance efforts. In doing so, KDOW has assessed several factors and broken all 120 counties into 3 maintenance tiers. KDOW developed a weighted formula for the 3 tiers based on population growth, population density, stream miles/level of existing studies, number of flood insurance policies, and FEMA's decile ranking per county. Tier 1 counties are those that are progressive have high population and growth potential and will be in need of map revisions every 1-3 years. Tier 2 counties are those that exhibit moderate population and growth potential and will be in need of map revisions every 4-6 years. Tier 3 counties are those that exhibit low population and growth potential and will be in need of map revisions every 7-9 years. Figure 3.2.1 depicts the proposed schedule of map maintenenance needs statewide.

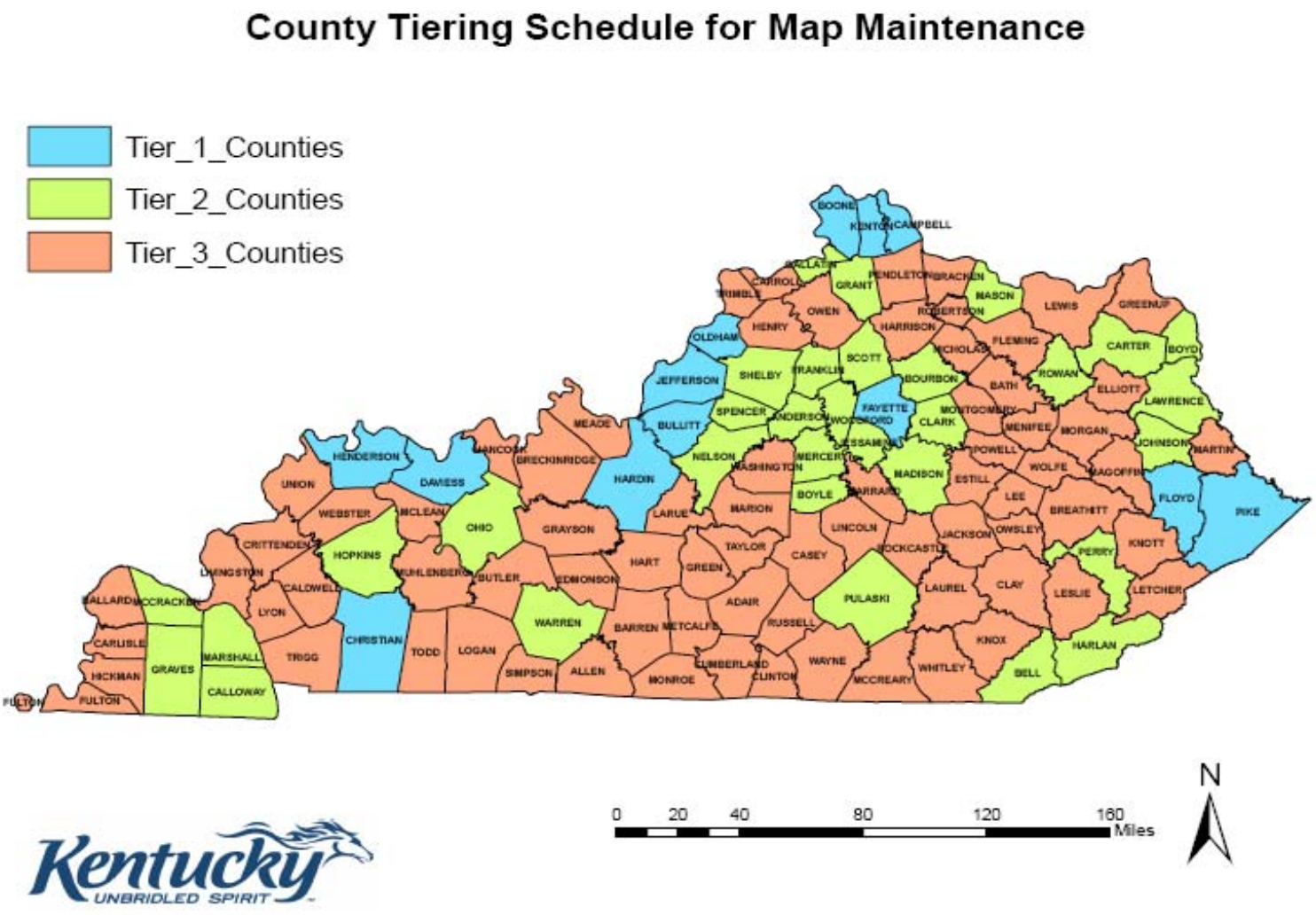

Figure 3.2.1. County Tiering Schedule for Map Maintenance

Section 4. Effects of Business Plan Revisions

KDOW prepared the original Business Plan with an assumed level of funding per year based upon discussions with FEMA. The Plan also included a production sequence that was optimized to exceed FEMA's performance metrics. Since that time, the level of funding and the production sequence have been changed. The following table indicates the revised funding and sequencing schedule and it's correlation with KPI #1.

Table 4.1. Revised Funding and Sequencing Schedule and Correlation to KPI #1

Year Preliminary DFIRM Published	Business Plan Funding	Business Plan Counties Completed	Business Plan Population Metric	Anticipated Funding	Counties Completed	Population Metric
FY2004 or prior	$ 2,796,800	9	8%	$ 2,504,000	9	8%
FY2005	$ 2,806,200	20	57%	$ 2,570,000	15	**48%***
FY2006	$ 2,805,000	20	67%	$ 3,152,000	13	**60%***
FY2007	$ 2,796,000	18	76%	$ 3,502,000	23	**72%***
FY2008	$ 2,796,000	20	87%	$ 3,502,000	29	88%
FY2009	$ --	33	100%	$ --	31	100%
TOTAL	**$14,000,000**	**120**	**100%**	**$15,230,000**	**120**	**100%**

* Revision does not meet national Key Performance Indicator

By altering the county sequence from the original business plan and the FY 2005 updates, flood insurance statistics were also altered. The following table depicts insurance policy statistics compared with proposed preliminary DFIRM production (% insurance policy base is based upon the actual number of policies as of August 24, 2006).

Table 4.2. Percent Insurance Policy Base Covered by DFIRM Data

Year Preliminary DFIRM Published	% Insurance Policy Base	Cumulative % Insurance Policy Base
FY 2004	12.2%	12.2%
FY 2005	48.5%	60.7%
FY 2006	14.8%	75.5%
FY 2007	11.2%	86.7%
FY 2008	8.4%	95.1%
FY 2009	4.9%	100%

As Map Modernization progresses throughout the state, there is the potential for many communities with no SFHAs to have newly identified SFHAs either through annexation or better study methodologies. The table below outlines the total number of communities and the number of non-participating NFIP communities that will be receiving new DFIRMs from FY 2005-FY 2008.

Table 4.3. Overview of Participating and Non-participating NFIP Communities Mapped from FY 2005 – FY 2008

Year County Funded	Total Number of Communities (including counties and incorporated areas)	Total number of non-participating NFIP communities
FY 2005	70	23
FY 2006	67	16
FY 2007	100	31
FY 2008	109	50

Considering the number of non-participating communities that will be receiving new DFIRMs, considerable outreach will be conducted by KDOW, FEMA, and/or the NSP in order to avoid a potentially significant amount of sanctioned communities.

Section 5. Conclusions

5.1. Funding

FEMA has increased the anticipated Map Modernization funding allocations for FY 2006-2008 from $8.723 million to $10.156 million. This funding increase will allow for the remaining unmapped counties in Kentucky to receive digital maps, however, additional funding is required to obtain the quality of study need for each remaining county.

In addition to increased funding, the release of funding to CTP sooner in the fiscal year is encouraged so that production schedules can be met. KDOW realizes that the Region does not have complete control over the timing of when the funds can be released to Kentucky. Similarly, the Region cannot expect KDOW to meet production schedules when funding is delayed until mid-year. When this happens, KDOW and FEMA lose valuable production and map adoption time, thereby delaying the project and metric completion.

5.2. Map Maintenance

In keeping with KDOW's goal of mapping flood hazard areas up to the one square mile (1 mi^2) watershed area, there is a significant gap with the available funding to achieve this goal. KDOW plans to identify flood hazard areas up to the smallest watershed possible with existing funding. With this in mind, it is vital to the usability of the new map products that map maintenance issues are addressed. As more accurate data is produced, there must be a plan after 2008 to maintain the maps and supplement them with additional flood hazard data. It would be a discredit to the efforts put forth to have digital map products and not strive to identify as many flood hazards as possible.

5.3. Study Management

KDOW has finalized their Map Modernization procurement process and now has sufficient contractor capacity to assist the State in implementing this program. KDOW will be responsible for conducting future project scoping, production and map adoption tasks in accordance with the State's business plan and all subsequent revisions. With proper funding, KDOW can manage and coordinate the remainder of Map Modernization such that expectations are achieved for quality, timeliness and enhancement of floodplain management participation and awareness throughout the State.

APPENDIX A:
Example Flood Hazard Risk Data Compiled by KDOW in order to Identify Areas of Need

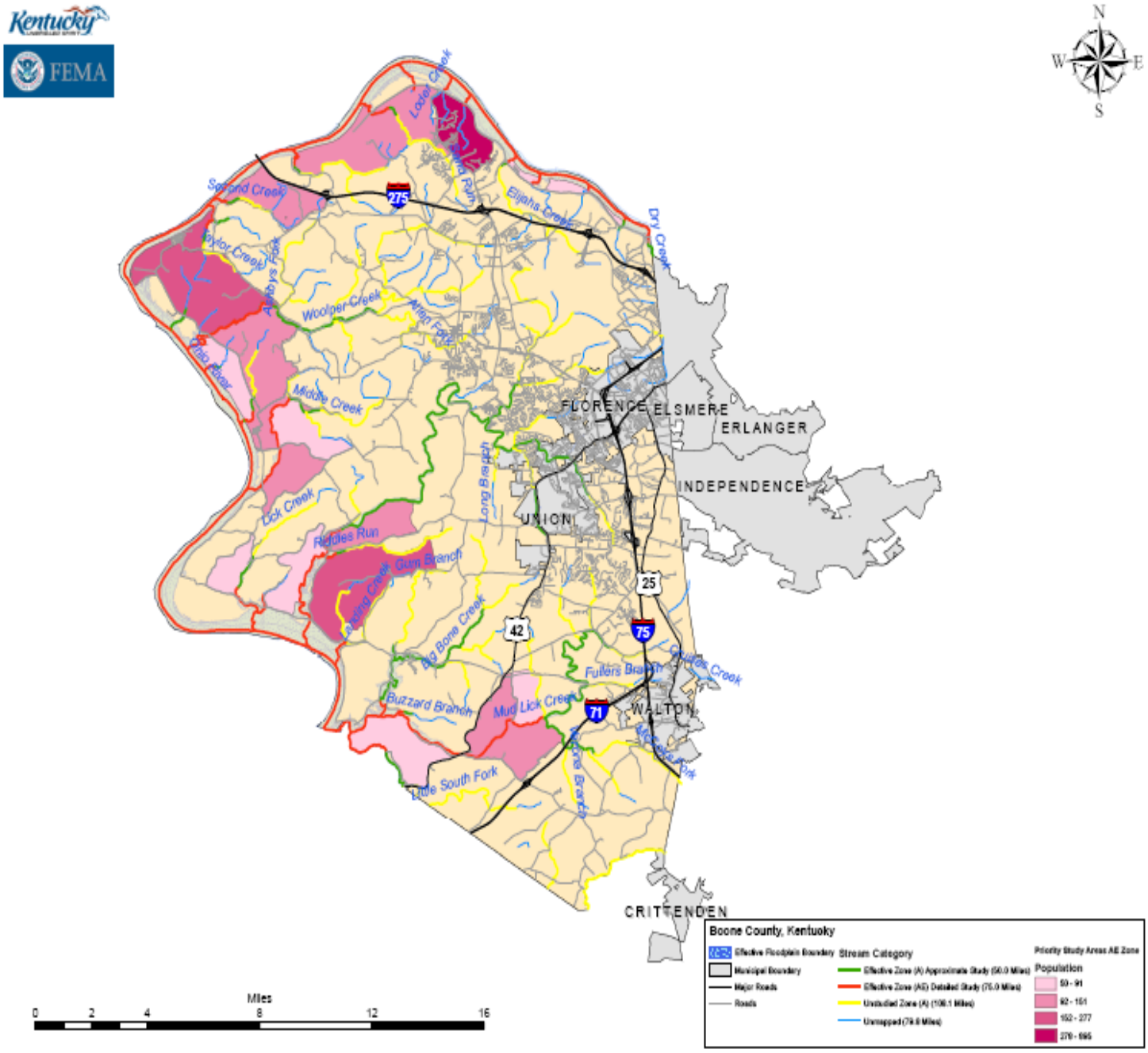

Figure A.1. Existing Zone AE intersected with Census Data to Identify Future Areas of Need

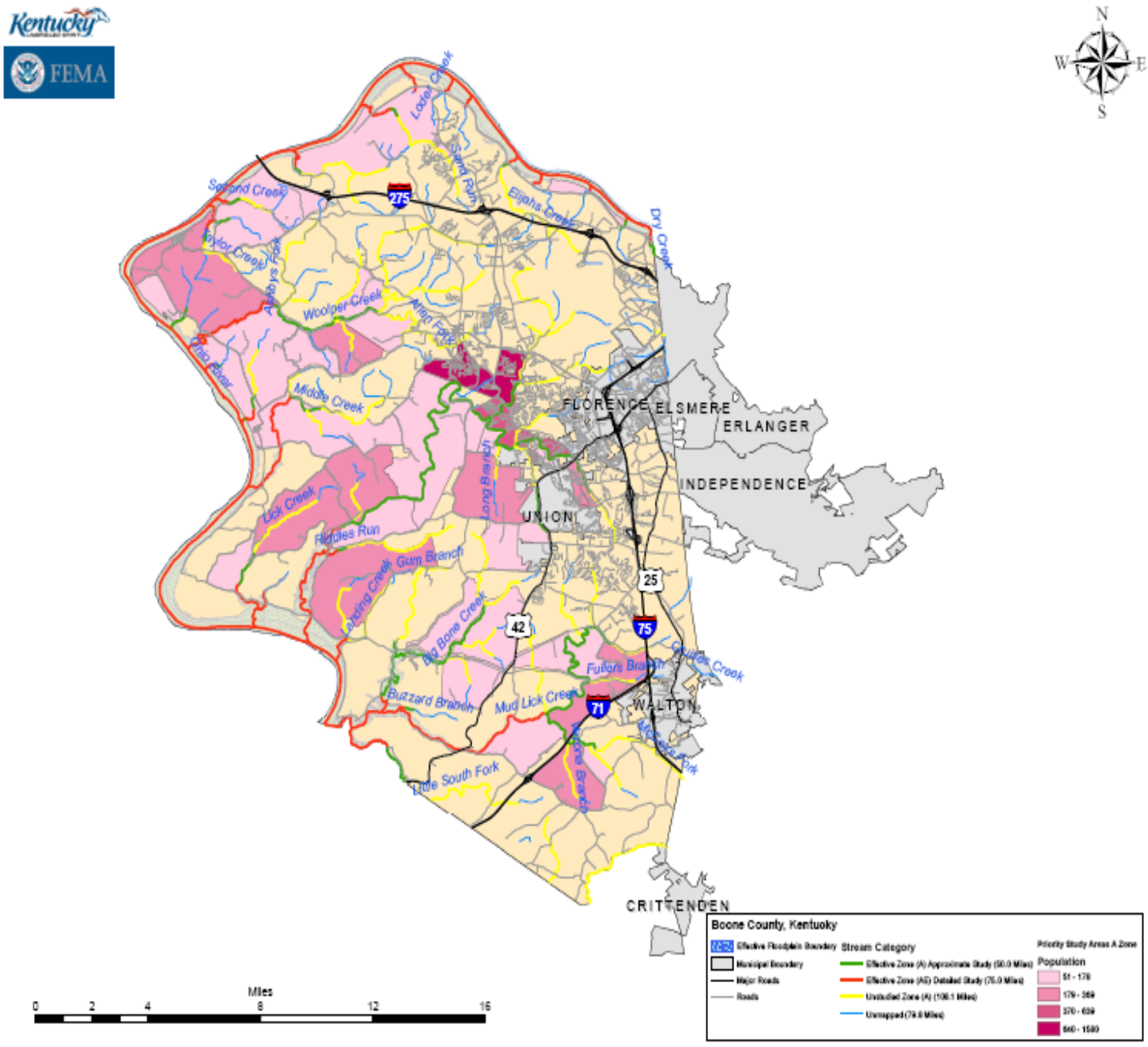

Figure A.2. Existing Zone A intersected with Census Data to Identify Future Areas of Need

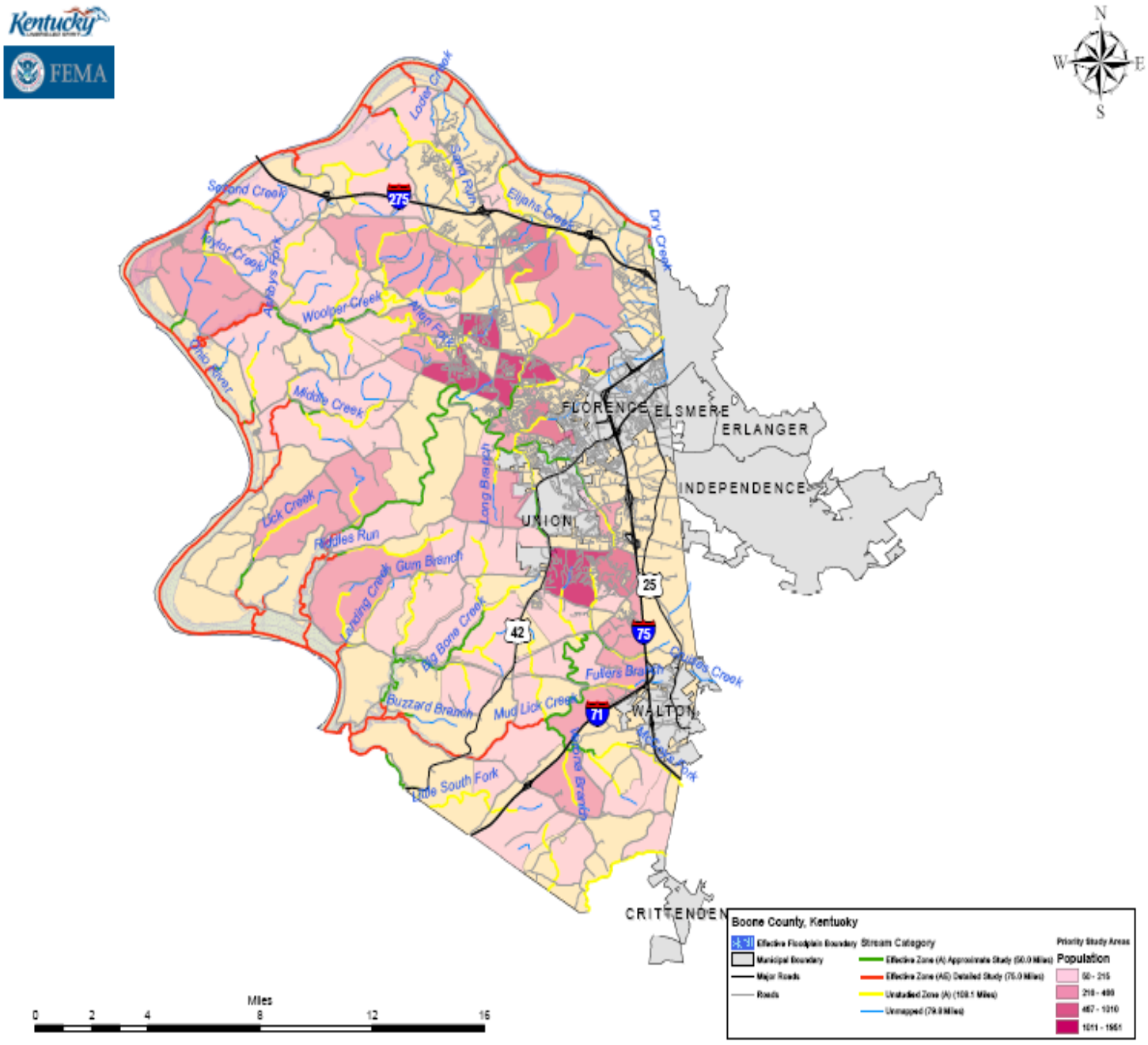

Figure A.3. Unmapped Streams Needing SFHAs identified intersected with Census Data to Identify Future Areas of Need

APPENDIX B:
Business Plan/Unmet Needs for other CTPs in Kentucky

Map Modernization Business Plan Update

Louisville and Jefferson County
Metropolitan Sewer District

August 2006

Purpose

At the request of the Federal Emergency Management Agency (FEMA), the Louisville/Jefferson County Metropolitan Sewer District (MSD) has developed this update to identify additional mapping needs within the Louisville Metro area as of 2006. In addition to mapping needs, MSD has identified local activities that have been identified as leverage for future mapping efforts. This update serves as an appendix to the original Map Modernization Business Plan submitted by MSD to the Kentucky Division of Water and FEMA Region IV.

Mapping Needs Assessment

As described in MSD's Map Modernization Business Plan, a countywide DFIRM update is in progress and partially funded through the Map Modernization Program. However, additional mapping needs remain throughout the county, primarily defined by dated and inaccurate effective hydrologic and hydraulic studies that no longer represent existing conditions. Demand for updated maps is further necessitated by development demands.

Additional mapping needs for Jefferson County have been identified in the form of detailed and limited detailed studies as well as conversions of models to unsteady state. During the 2003 Map Modernization project several streams throughout Jefferson County were identified as needing updated analysis.

New Unsteady State Modeling performed along Pond Creek lowered the Base Flood Elevations (BFE). These lower BFEs have brought to light the need to update the downstream boundary conditions of tributaries to Pond Creek and incorporate these into the unsteady state model. It is anticipated that lower BFEs will be determined for portions of these streams.

Development pressures along existing A zones are driving the need for more detailed analysis in many areas. MSD has given consideration to stream reaches that could benefit from an upgrade to limited detailed studies as this is a cost effective method to use in updating inaccurate or outdated flood studies and provide the community with better floodplain management tools.

The table below summarizes the needs and priorities of Jefferson County and outlines the stream name, current effective zone, proposed study type, mileage and cost. Streams are

divided into three tiers that indicate the levels of priority to MSD with Tier 1 being of highest priority.

Stream Name	Effective Zone	Proposed Study Type	Mileage	Cost	Running Cost Total
Tier 1					
MUD CREEK	AE	UNSTEADY INTEGRATION	3	$22,500	$22,500
RONEY DITCH	A	LIMITED DETAIL	1.7	$12,750	$35,250
CHENOWETH RUN LOWER	A	LIMITED DETAIL	9.02	$67,650	$102,900
CHENOWETH RUN UPPER	A	LIMITED DETAIL	4.5	$33,750	$136,650
GOOSE CREEK	A	LIMITED DETAIL	10.5	$78,750	$215,400
RAZOR BRANCH	NONE	LIMITED DETAIL	2.4	$18,000	$233,400
BRUSH RUN UPPER (A)	A	LIMITED DETAIL	3	$22,500	$255,900
MIDDLE FORK BEARGRASS CREEK	AE	DETAIL	15.37	$192,125	$448,025
TIER 2					
FERN CREEK	A	LIMITED DETAIL	7.32	$54,900	$502,925
WOLF PEN BRANCH	A	LIMITED DETAIL	2.4	$18,000	$520,925
BIG BEE LICK CREEK	AE	UNSTEADY INTEGRATION	2.25	$16,875	$537,800
LITTLE BEE LICK CREEK	AE	UNSTEDY INTEGRATION	2.18	$16,350	$554,150
WHEELERS RUN/BLACK RUN	A	LIMITED DETAIL	3.13	$23,475	$577,625
POPE LICK	A	LIMITED DETAIL	5.9	$44,250	$621,875
IROQUOIS HEIGHTS BRANCH	NONE	LIMITED DETAIL	0.9	$6,750	$628,625
WET WOODS CREEK	AE	UNSTEADY INTEGRATION	4.4	$33,000	$661,625
LONGVIEW CREEK	A	LIMITED DETAIL	1.87	$14,025	$675,650
OLD MANS RUN (LONG RUN 1)	A	LIMITED DETAIL	1.63	$12,225	$687,875
WALNUT HILL BRANCH	A	LIMITED DETAIL	0.94	$7,050	$694,925
TIER 3					
SHECKELS RUN	NONE	LIMITED DETAIL	2.79	$20,925	$715,850
BRUSH RUN MIDDLE	A	LIMITED DETAIL	2.52	$18,900	$734,750
BRUSH RUN LOWER	A	LIMITED DETAIL	3.23	$24,225	$758,975
BEARCAMP RUN	A	LIMITED DETAIL	1.17	$8,775	$767,750
ST. GABRIEL BROOK	A	LIMITED DETAIL	0.94	$7,050	$774,800
DUNBAR BRANCH	NONE	LIMITED DETAIL	1.5	$11,250	$786,050
ROBERSON RUN	AE	UNSTEADY INTEGRATION	2.58	$19,350	$805,400

Stream Name	Effective Zone	Proposed Study Type	Mileage	Cost	Running Cost Total
FILSON FORK	AE	UNSTEADY INTEGRATION	1.56	$11,700	$817,100
MANSLICK DITCH	AE	UNSTEADY INTEGRATION	2.16	$16,200	$833,300
BROAD RUN	A	LIMITED DETAIL	0.95	$7,125	$840,425
AVOCA CREEK	A	LIMITED DETAIL	0.51	$3,825	$844,250
BACK RUN	A	LIMITED DETAIL	5.03	$37,725	$881,975
BRIER CREEK	A	LIMITED DETAIL	4.42	$33,150	$915,125
CRANE RUN	A	LIMITED DETAIL	4.41	$33,075	$948,200
HUNTING CREEK	AE	DETAIL	2.72	$34,000	$982,200
LOCUST GROVE CREEK	A	LIMITED DETAIL	1.11	$8,325	$990,525
MIDDLETOWN BRANCH	A	LIMITED DETAIL	1.25	$9,375	$999,900
SALT BLOCK CREEK	AE	DETAIL	0.85	$10,625	$1,010,525
SHAKES RUN	A	LIMITED DETAIL	2.92	$21,900	$1,032,425
SHINKS BRANCH	A	LIMITED DETAIL	2.06	$15,450	$1,047,875
SOUTH LONG RUN	A	LIMITED DETAIL	2.26	$16,950	$1,064,825
SPOTSWOOD RUN	A	LIMITED DETAIL	2.08	$15,600	$1,080,425
WHEELERS RUN/BLACK RUN	A	LIMITED DETAIL	1.6	$12,000	$1,092,425
BRUSH RUN MIDDLE	A	LIMITED DETAIL	2.52	$18,900	$1,111,325
		Total	**135.55**	**$1,111,325**	**$1,111,325**

Leverage Studies

Over the past year MSD has made a significant investment into new detailed analysis in the Mill Creek Watershed. As part of the 2003 Map Modernization Project Mill Creek was identified as an area that could benefit from new detailed analysis based upon new hydrologic and hydraulic conditions. In an effort to provide proactive floodplain management MSD recently completed detailed analysis on several streams including; Upper Mill Creek, Lynnview Ditch, Cane Run, Cane Run East Fork and Big Run East totaling approximately 14 miles. These leverage studies will need to be included in the next round of updates for Jefferson County.

Basemap Updates

MSD will also be able to provide updated mapping information for Jefferson County. In the spring of 2006 new aerial photography was acquired by the Louisville Jefferson County Information Consortium (LOJIC) in a county-wide format and will be available for future mapping efforts. In addition, new topographic data will be developed in concentrated areas where significant change has occurred. Applying this new basemap information provides local floodplain administrators access to the most accurate and up to date available for effective floodplain management.

Map Modernization Business Plan Update

Warren County/Bowling Green

August 2006

August 17, 2006

Carey Johnson
Kentucky Division of Water
14 Reilly Road
Frankfort, KY 40601

RE: Flood Map Modernization State Business Plan Update
Warren County Additional Mapping Needs

Dear Mr. Johnson,

Having been informed that the Division of Water is updating the State Business Plan for FEMA Flood Map Modernization Fiscal Year 2006, we would like to advise you on our community's mapping needs in hopes that additional funding could be made available for an additional Map Modernization Project.

Bowling Green and Warren County entered into a CTP Agreement with FEMA in 2004. We received a grant in the amount of $366,000 as a result of the State Business Plan needs assessment for our community. During the Scoping phase of our Map Mod project, we identified needs in excess of $1.4 million above and beyond the grant funding. We prioritized our most critical areas for detailed study and established the remainder as redelineation or approximate studies to maximize our funding level. I have attached tables and a map showing 91 miles of stream and over 60 sinkholes we believe need limited detail or detailed studies. Several of these have had approximate studies and/or redelineations done, but we feel that detailed studies would more effectively solve current flood issues. We have estimated the cost per riverine watershed study to be $7,000, sinkhole watershed studies to be $5,500, and revalidations of existing watershed studies to be $3,000.

We understand the focus of this additional funding is for streams that drain one square mile or more with at least a Zone A floodplain. Although a large number of streams located in Warren County meet this description, we feel that additional sinkhole watershed studies would serve the community better. Due to our predominant karst topography, the majority of stormwater runoff travels to subterranean streams through existing sinkholes. Therefore, a more detailed study and understanding of these sinkholes is essential for our comprehensive floodplain data.

We request that the Kentucky Division of Water and FEMA consider our needs during this budgeting and planning processes. We have estimated the total cost to perform detailed studies on both unmapped riverine and karst watersheds to be approximately $630,000. We would like to be considered for any additional funding available for Fiscal Year 2006.

CITY-COUNTY PLANNING COMMISSION OF WARREN COUNTY
1141 STATE STREET, BOWLING GREEN, KY 42101
270•842•1953 [FAX] 270•842•1282
WWW.WARRENPC.ORG

ID No.	Flooding Source	Reach Limits	Reach Length (miles)	Detailed Analysis or Approximate Study	If Detailed, Current Hydrologic Methodology	If Detailed, Current Hydraulic Methodology	Coastal or Riverine
1	Barren River	Approximately 1,900 feet upstream of confluence with Little Muddy Creek to approximately 2,500 feet downstream of Unnamed Trib	20.66	Approximate	N/A	N/A	Riverine
1	Barren River	Approximately 26,000 feet downstream of confluence with Drakes Creek to south eastern county boundary	21.65	Approximate	N/A	N/A	Riverine
1	Barren River	North western county boundary at confluence with Green River to approximately 1,900 feet upstream of confluence with Little Muddy Creek	2.52	Detailed	Stage frequency from recorded values	HEC-2	Riverine
1	Barren River	1,000 feet upstream of confluence with Unnamed Tributary to approximately 26,000 feet downstream of confluence with Drakes Creek	24.70	Detailed	Stage frequency from recorded values	HEC-2	Riverine
2	Bays Fork	Same as Effective Limits	6.02	Approximate	N/A	N/A	Riverine
3	Belcher Creek	Same as Effective Limits	3.16	Approximate	N/A	N/A	Riverine
4	Betsy Branch	Same as Effective Limits	0.92	Approximate	N/A	N/A	Riverine
5	Brush Creek	Same as Effective Limits	10.88	Approximate	N/A	N/A	Riverine
6	Brushy Fork	Same as Effective Limits	0.54	Approximate	N/A	N/A	Riverine
7	Chism Creek	Same as Effective Limits	5.79	Approximate	N/A	N/A	Riverine
8	Clay Lick	Same as Effective Limits	3.12	Approximate	N/A	N/A	Riverine
9	Claylick Creek	Same as Effective Limits	6.74	Approximate	N/A	N/A	Riverine
10	Clear Fork Creek	Same as Effective Limits	6.12	Approximate	N/A	N/A	Riverine
11	Clifty Creek	Same as Effective Limits	3.13	Approximate	N/A	N/A	Riverine
12	Drakes Creek	Same as Effective Limits	23.37	Approximate	Discharge frequency from recorded values	HEC-2	Riverine
13	Gasper River	Same as Effective Limits	21.46	Approximate	N/A	N/A	Riverine
14	Gasper River Trib	Same as Effective Limits	1.64	Approximate	N/A	N/A	Riverine
15	Green River	Same as Effective Limits	19.22	Detailed	Discharge frequency from recorded values	HEC-2	Riverine
16	Hightower Creek	Same as Effective Limits	0.73	Approximate	N/A	N/A	Riverine
17	Indian Creek	Same as Effective Limits	3.49	Approximate	N/A	N/A	Riverine
18	Ivy Branch	Same as Effective Limits	3.61	Approximate	N/A	N/A	Riverine
19	Ivy Creek	Same as Effective Limits	1.88	Approximate	N/A	N/A	Riverine
20	Jennings Creek	Same as Effective Limits	6.51	Detailed	SCS	HEC-2	Riverine
21	Little Claylick Creek	Same as Effective Limits	3.21	Approximate	N/A	N/A	Riverine

ID No.	Flooding Source	Reach Limits	Reach Length (miles)	Detailed Analysis or Approximate Study	If Detailed, Current Hydrologic Methodology	If Detailed, Current Hydraulic Methodology	Coastal or Riverine
22	Little Sinking Creek	Same as Effective Limits	1.85	Approximate	N/A	N/A	Riverine
23	Long Branch	Same as Effective Limits	0.25	Approximate	N/A	N/A	Riverine
24	Lost Creek	Same as Effective Limits	2.80	Approximate	N/A	N/A	Riverine
25	Maxey Creek	Same as Effective Limits	2.05	Approximate	N/A	N/A	Riverine
26	Middle Fork Drakes Creek	Same as Effective Limits	6.49	Approximate	N/A	N/A	Riverine
27	Rays Branch	Same as Effective Limits	3.41	Approximate	N/A	N/A	Riverine
28	Reeves Creek	Same as Effective Limits	2.12	Approximate	N/A	N/A	Riverine
29	Salt Lick Creek	Same as Effective Limits	5.11	Approximate	N/A	N/A	Riverine
30	Sinking Creek	Same as Effective Limits	1.45	Approximate	N/A	N/A	Riverine
31	Stall Creek	Same as Effective Limits	2.08	Approximate	N/A	N/A	Riverine
32	Stone Creek	Same as Effective Limits	0.59	Approximate	N/A	N/A	Riverine
33	Taylor Branch	Same as Effective Limits	1.52	Approximate	N/A	N/A	Riverine
34	Trammel Creek	Same as Effective Limits	7.60	Approximate	N/A	N/A	Riverine
35	Unnamed	Same as Effective Limits	10.46	Approximate	N/A	N/A	Riverine
36	Unnamed	Same as Effective Limits	25.43	Approximate	N/A	N/A	Riverine
37	West Fork Drakes Creek	Same as Effective Limits	4.53	Approximate	N/A	N/A	Riverine
38	Westbrook Creek	Same as Effective Limits	1.80	Approximate	N/A	N/A	Riverine

ID No.	Change to Reach Limits	Change to Reach Length (miles)	Detailed Riverine		New Limited Detailed Study	Redelineation of SFHAs Using Effective Profiles	Refine/ Establish Zone A
			Hydrology	Hydraulics			
1	Approximately 1,500 feet downstream of confluence with Unnamed Trib to Confluence with Bays Fork	3.89					X
1	Approximately 26,000 feet downstream of confluence with Drakes Creek to approximately 1,500 feet downstream of confluence with Unnamed Trib	10.00	X	X	X		

ID No.	Change to Reach Limits	Change to Reach Length (miles)	Detailed Riverine		New Limited Detailed Study	Redelineation of SFHAs Using Effective Profiles	Refine/ Establish Zone A
			Hydrology	Hydraulics			
1	North western county boundary at confluence with Green River to approximately 26,000 feet downstream of confluence with Drakes Creek	55.68				X	X
2	Same as Effective Limits	6.02				X	
3	Same as Effective Limits	3.16					X
4	Same as Effective Limits	0.92				X	
5	Same as Effective Limits	10.88					X
6	Same as Effective Limits	0.54				X	
7	Same as Effective Limits	5.79					X
8	Same as Effective Limits	3.12				X	
9	Same as Effective Limits	6.74				X	
10	Same as Effective Limits	6.12					X
11	Same as Effective Limits	3.13				X	
12	Same as Effective Limits	23.37				X	
13	Same as Effective Limits	21.46					X
14	Same as Effective Limits	1.64					X
15	Same as Effective Limits	19.22				X	
16	Same as Effective Limits	0.73				X	
17	Same as Effective Limits	3.49				X	
18	Same as Effective Limits	3.61					X
19	Same as Effective Limits	1.88				X	
20	Same as Effective Limits	6.51				X	
21	Same as Effective Limits	3.21				X	
22	Same as Effective Limits	1.85				X	
23	Same as Effective Limits	0.25				X	
24	Same as Effective Limits	2.80				X	
25	Same as Effective Limits	2.05				X	
26	Same as Effective Limits	6.49					X
27	Same as Effective Limits	3.41				X	
28	Same as Effective Limits	2.12				X	
29	Same as Effective Limits	5.11					X
30	Same as Effective Limits	1.45				X	
31	Same as Effective Limits	2.08				X	
32	Same as Effective Limits	0.59				X	
33	Same as Effective Limits	1.52				X	
34	Same as Effective Limits	7.60					X

ID No.	Change to Reach Limits	Change to Reach Length (miles)	Detailed Riverine		New Limited Detailed Study	Redelineation of SFHAs Using Effective Profiles	Refine/ Establish Zone A
			Hydrology	Hydraulics			
35	Same as Effective Limits	10.46					X
36	Same as Effective Limits	25.43				X	
37	Same as Effective Limits	4.53					X
38	Same as Effective Limits	1.80					X

ID No.	Sinkhole Name	Redelineation of SFHAs	New Sinkhole Basin Study
39	1A	X	
40	1B	X	
41	2	X	
42	3	X	
43	4A	X	
44	4B	X	
45	4C	X	
46	5	X	
47	6	X	
48	7	X	
49	8	X	
50	9A	X	
51	9B	X	
52	9C	X	
53	9D	X	
54	9E	X	
55	9F	X	
56	9G	X	
57	9H	X	
58	9J	X	
59	9J	X	
60	9K	X	
61	10	X	
62	11	X	

ID No.	Sinkhole Name	Redelineation of SFHAs	New Sinkhole Basin Study
63	12A	X	
64	12B	X	
65	12C	X	
66	12D	X	
67	13	X	
68	14	X	
69	15	X	
70	16A	X	
71	16B	X	
72	17	X	
73	18	X	
74	19	X	
75	20	X	
76	21	X	
77	22	X	
78	23	X	
79	24	X	
80	25A	X	
81	25B	X	
82	25C	X	
83	25D	X	
84	26	X	
85	27	X	
86	28	X	
87	29	X	
88	30	X	
89	31	X	
90	32	X	
91	33	X	
92	34	X	
93	35	X	
94	36	X	
95	37A-N	X	

ID No.	Sinkhole Name	Redelineation of SFHAs	New Sinkhole Basin Study
96	37A-S	X	
97	37B	X	
98	38	X	
99	Pascoe Boulevard		X
100	Lost River Park		X
101	Canton Avenue*		X
102	Bogle Lane		X
103	Holly Drive		X
104	Media Drive		X
105	Wellington Way		X

Map Modernization Business Plan Update

Lexington/Fayette Urban County Government (LFUCG)

August 2006

An overview of needs not addressed from funding in FY 2003 is as follows:

Stream Name	Effective Zone	Proposed Study Type	Extent
Cave Creek / Dogwood Tributary	A	Detailed	Above Ridgecane Road
Cane Run	A	Detailed	From I-64/I-75 to County Line
Stonewall Estates Tributary	A	Detailed	To Fort Harrod Drive
UK Agriculture Station Branch	A	Detailed	Form Pierson Drive to Lisa Drive
Pleasant Ridge Church Tributary	A	Detailed	Above Confluence with Two Ponds Tributary
Unnamed I-75 Tributary	A	Detailed	Entire Reach
Five Ponds Tributary	A	Detailed	Entire Reach
Radio Tower Tributary	A	Detailed	Entire Reach